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ABSTRACT

Using second grade children, this study was designed to investigate the differences (or lack of differences) among the Interview, the Picture Stimulus Interview, and the Free Play Situation techniques in the categories of productivity, thought groups, compound structures, complex structures, and words per thought group as a means of gaining a corpus of language for further study. A review of the research revealed that all three methods had been used but that no evidence existed for postulating the superiority of any one method. Subjects were divided into three groups, each exposed to a different method. Findings indicated significant differences existed among the three treatments although none existed between the Interview and the Picture Stimulus Interview. Furthermore, the research showed the Free Play Situation to be the weakest sampling technique. Consequently the following conclusions were drawn: (1) the recording of an interview is a better method than the recording of a free play situation for gaining a sample of children's language; (2) the inclusion or exclusion of picture stimuli will not make a difference in the subjects' speech; and (3) measuring the total number of words spoken by a subject in an interview will yield a good indication of that subject's performance on syntactic structures. (HS)

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A COMPARISON OF LANGUAGE SAMPLING TECHNIQUES USING SECOND GRADE CHILDREN

by

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Chapel Hill

1971

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CHAPTER I

INTRODUCTION TO AND DISCUSSION OF THE PROBLEM

I. GENERAL INTRODUCTION

Man has been interested in the study of language for one reason or another for many years. The philosophers of Classical Greece, most notably Plato and Aristotle, were very concerned with matters of language, especially as they coincided with matters rhetorical and logical. While the early philosophers were concerned with persuasion and its related paralinguistic studies, the philosophers of the early Christian era through the Medieval period were for the most part concerned with language as it related man to God or to animals. Whether language was considered to be God-given or biologically-based and instinctive or considered to be a study for the philosopher or the rhetor, the study of language was thought to be imperative.[1] To gain a better understanding of the processes of language, grammars were written and rewritten, treatises on rhetorical principles were composed and studied, and the study of language, with no readily discernable direction, was begun.[2]

Through the centuries man has continued to be interested in the study of language, although the emphases of the study of language,

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[1]A very brief overview of the various philosophical points of view regarding language as (a) God-given, (b) instinctive, (c) biologically-based, and/or (d) psychologically-based is contained in "Language in Historical Perspective" which is found in Harold J. Vetter, Language Behavior and Communication: An Introduction (Itasca, Ill.: F. E. Peacock, 1969).

[2]The works of Corax, Donatus and Priscian, Aristotle, Quintiliani, Plato, Cicero, and many others are examples.

have frequently been altered. Grammars are still being written, rhetoric and persuasion remain as emphases, and the discussion of language in terms of philosophy continues.[3] Additional emphases such as ethnographic, kinesic, and psycholinguistic have been the concern of scholars in the last several decades. If reduced to a line representing a continuum, the extremes of the line could stand for ethnography on one end and psycholinguistics on the other. Such a continuum does not truly portray the complexity of the inter-relationships between the two emphases, but since the studies involved do represent divergent endeavors, any common features of the two studies which bear upon the topic at hand are justifiably discussed here.

Whether the scholar finds himself at either pole or along the continuum, the most crucial feature of his studies is observation. When the ethnographer enters a new region, he often lives with the natives for an extended period of time. He seeks information regarding culture and language, and since his aims are so broad his method involves his becoming acculturated. His observation is unstructured and continuous. When the psycholinguist desires to study a child's progress in language acquisition or developmental level in language, he generally begins by observing the child in a situation structured to elicit language, which is recorded for future analysis. He desires very specific information such as amplitude, pitch, stress, juncture, and pause and breath combinations. Unlike the field anthropologist who might use pencil and

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[3]For examples, see Robert Lees, The Grammar of English Nominalizations (The Hague: Mouton and Co., 1960); Edward P. J. Corbett, Classical Rhetoric for the Modern Student (New York: Oxford University Press, 1965); and V. C. Chappell (ed.), Ordinary Language (Englewood Cliffs: Prentice Hall, Inc., 1964), respectively. In the latter volume the Ryle, Mates, and Cavell articles are particularly appropriate.

note pad jottings as a record, the psycholinguist might use spectrographs, flourographs, audio and video tape recorders, and many other complex instruments to record his sample. In either case the crucial element is observation.

While observation is the crucial element in language studies, there have been several methods of observation used; some researchers have used the interview, with or without special stimuli to help elicit language, as the basic method, and others have used an unstructured play or work situation as an activity-producing stimulus and have observed the subjects as they interact with each other. The language gained from these observations is the data, and therefore can be termed a "sample" of language, which is used for further study.[4] The technique which utilizes the observation of subjects at work or play is favored by researchers who follow Piaget and his assumptions about language processes. The technique which utilizes the interview is used by clinicians and psycholinguistics more often since they are generally studying one or two particular aspects of language, and these are identified before the observation period is initiated. In the interview technique some researchers have used only the verbal stimulus (provided by the interviewer),

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[4]There is considerable debate regarding the necessity and feasibility of gaining a corpus of language for further study. Some scholars argue that enough studies of the corpus type have been carried out to furnish data for many years of study. Others argue that these studies are not only feasible (for each subjec is different, has a different experiential background, and responds differently to his environment) but also necessary in order that all possible language development and acquisition problems may be studied. A good discussion of both sides of the argument can be read in "Acquisition of Language," which is found in Volume 29 (1964) of the publications of the Society for Research in Child Development. This issue, edited by Roger Brown and Ursala Bellugi, contains particularly appropriate comments by Professor Chomsky (especially on page 37) and a rebuttal by Professor Brown and Colin Fraser (especially on page 49).

but others have used the additional stimulus of pictures to assist the interviewer in eliciting language from the subject on the assumption that a distinct referent will allow the subject to speak without having to reflect as much on his personal experiences at the outset of the interview.

II. STATEMENT OF THE PROBLEM

Observation is the basis of the problem investigated in this study. Specifically, the problem was to compare the effectiveness of three observational techniques, the interview, the picture-stimulus interview, and the free play situation, as means of obtaining a corpus of language for later study. There were five categories used in the comparison: productivity, compound structures, complex structures, thought groups, and words per thought group.

One of the critical factors in studies of children's language is age-specificity, and this study was designed to work specifically with Second Grade children. The second grade was chosen arbitrarily since it seems a logical point for studies which intend to produce data for preventive remediation of learning or language difficulties in school children. Beyond that point both school-learned habits and language habits may have become too well developed for much preventive remediation.

The concern of this researcher was: How would a scholar know which method of observation to use to gain a corpus of language for analysis when he undertakes a study of children's language (for any number of reasons)? In studies done prior to this research, little justification exists for choosing one method rather than another. This study was intended to cover some of the area (specifically, that part of the area represented by the five categories for analysis listed above) necessary for deciding among the methods.

III. LIMITATIONS OF THE STUDY

The study was concerned only with comparing observational techniques commonly used to gain a corpus of language for further study. There are many possible reasons for collecting such a corpus, and at different times in different situations one technique may be more practical than another; this study, however, investigated only the methodologies involved. The study was limited to an empirical comparison of the three techniques of observation, which, as will be discussed in Chapter Two, have been used without any published evidence indicating a basis for choosing one method rather than another.

One of the principal limitations of this study was the simplicity of the materials used. The researcher used materials which could be readily found by classroom teachers and machines in data collection which were not very expensive or complicated to operate. It was, and is, the researcher's desire that the methods used in this study be available to any who are interested in the study of children's language.

While this study has not attempted to study the data (language) gained from the subjects for reasons other than comparison, the samples of the children's language are available for analysis. In this respect, the study is important, for it provides another documented sample for study.

IV. ORGANIZATION OF THE REMAINDER OF THE DISSERTATION

Following this chapter there are four chapters: Chapter II, which contains a statement of the hypotheses and the rationale for them based on a report of the previous research done in this and related areas; Chapter III, which reports the design of the study, including selection

of the population and sample, description and discussion of the treatments, and a discussion of the procedures for collecting, organizing, and analysing the data; Chapter IV, which reports the data gathered and demonstrates the outcome of the application of the statistical tests to the data; and Chapter V, which includes the researcher's conclusions, a summary, and a statement of the implications of this study. Following Chapter V are the Bibliography and Appendices. In the Appendices are the instructions given each co-worker as well as a summary of the training sessions for the co-workers, summary ANOVA tables for the a priori test of Treatments One and Two, and sample transcriptions from the study.

CHAPTER II

THE STATEMENT OF AND RATIONALE FOR THE HYPOTHESES

All studies investigate certain major points; these are posed either as questions for study or hypotheses and function as the foci of interest. In this chapter the hypotheses of this study are listed and discussed. The discussion includes definitions of important terms and a summary of the relationship of this study to other studies in this and related areas.

I. STATEMENT OF THE HYPOTHESES

Very little evidence existed concerning possible differences among the three sampling techniques, as is demonstrated in the section on related research, and for that reason the researcher was not able to postulate any difference. The hypotheses were, therefore, both stated and investigated as null propositions.

The study was designed to investigate five statements; they are listed below.

1. There will be no significant difference among the Interview, the Picture Stimulus Interview, and the Free Play Situation techniques in the category of productivity.

2. There will be no significant difference among the Interview, the Picture Stimulus Interview, and the Free Play Situation techniques in the category of thought groups.

3. There will be no significant difference among the Interview, the Picture Stimulus Interview, and the Free Play Situation techniques in the category of compound structures.

4. There will be no significant difference among the Interview, the Picture Stimulus Interview, and the Free Play Situation techniques in the category of complex structures.

5. There will be no significant difference among the Interview, the Picture Stimulus Interview, and the Free Play Situation techniques in the category of words per thought group.

II. DEFINITION OF TERMS

For this study the definitions presented below were followed throughout.

The Two Interviews

The Interview Technique was a standard interview format; that is, an interview in which the stimuli and responses were verbal only was termed "Interview." This was the basic element in the study. The Picture Stimulus Interview technique was the basic interview format with the additional stimulus of a picture for each series of questions.

The Free Play Situation

A situation designed for the subjects to play and interact with each other is a "free play situation." In this type environment, the researcher attempts to control out all non-peer stimuli; the language activity which occurs results largely, then, from the interaction of the subjects involved in the situation.

The Categories of Analysis

There were five categories of analysis used in this study. "Productivity" was the total number of words uttered by a given subject in

the treatment situation. This measure of fluency is an often used index of language ability or level of acquisition. Also, vocabulary studies have as a basis this category. Examples from the study are (1) "That is the way they sound, you see; they make funny noises like this with the tape recorder." and (2) "Well, I like dolphins because they have a hole in the top of their head, and they splash up water." The productivity totals for these two examples are eighteen and twenty, respectively.

By "thought group" the researcher meant an independent syntactic structure, one that was capable of carrying a complete thought. The thought group must function as a unit and be of at least one word. Single words as "yes" and "no" were counted as thought groups when they were spoken in response to a Yes/No question. In the free play situation many more instances of imperative, one word thought groups occurred; these were counted as thought groups only if, as would be defined by grammarians, there was present a verb. (1) "He is hitting a bat; he is a baseball player!" and (2) "I live in the country, and I could see people's houses, and I can know where they live at." are examples from the study which have, respectively, two and three thought groups. If the subject had been asked by the interviewer, "Do you have any pets?" and the subject had answered "No.", the researcher counted the "No." as a thought group, since that answer was complete for a Yes/No question, as discussed above.

Structures which involve two or more syntactically equal segments of language, whether words, phrases, or clauses, joined by a conjunctive element were considered "Compound." "Complex structures," on the other hand, were defined as structures which are syntactically unequal joined by a subordinating element. Studies of language maturity frequently consider

compound and complex structures as crucial; the higher the incidence of complex structures relative to the incidence of compound structures, the more highly developed is the subject's use of logical thought in expressing himself. One very good example of the difference between these two categories from the study is "I don't know what I would name him, but I would give him grass and carrots." This example has two compound structures (The entire sentence is compound, and the direct object "grass and carrots" in the second clause is compound.); it has also one complex structure, since the first clause contains a noun clause as object of the verb "know."

The ratio termed "Words per thought group" is the last category of analysis used by the researcher. This index or ratio was used to compare the average length of thought groups among the three treatment groups. If a subject had 621 total words (productivity variable) and ninty-three total thought groups, both of which are means for treatment one subjects, the ratio would be approximately 6.6, which was the mean for treatment one in the last category of analysis.

III. REVIEW OF RELATED RESEARCH

Since little research existed in this area, and since no evidence existed for predicating that one treatment would be better than another, the researcher presents in this section, for the most part, proof that all three methods have been used. This review is divided into sections according to what will be termed later "treatment groups."

Research Related to the Free Play Situation

One often used method of collecting a sample of children's language is the diary method. This method involves some interested party or

researcher's following a certain child in his daily activities; the researcher notes all language produced by the child as well as all language-related, non-verbal attempts at communicating (especially in the case of very young children). Two of the historically important studies using this method were M. M. Lewis' 1936 study Infant Speech[1] and the Sterns' 1928 study Die Kindersprache.[2] While these studies were very helpful to linguists who studied language development earlier in this century, this approach has been superceded by more controlled efforts. The principal control factor was simply that most of the researchers who conducted these type studies were the parents of the subjects; parents can frequently "understand" an utterance because of its associated non-verbal activities, not because it was distinct, or even an actual utterance with form. For school-oriented research this method has two failings: first, the subjects are usually at a very mature level of speech when the problems are first noticed; second, the school personnel who recommend a student for study do not wish that study to last more than a few days before some program of remediation with a complete diagnosis is forthcoming.

The technique described above has been refined and used in a more abbreviated form by Roger Brown and his co-worker Ursula Bellugi in a

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[1]London: Kegan Paul. Lewis was also author of Infant Speech: A Study of the Beginnings of Language (New York: Humanities Press, 1951).

[2]Clara Stern and William Stern, Die Kindersprache: Monographien uber die seelische Entwicklung des Kindes (Leipzig: V. J. Ambrosius Barth, 1922). Other studies using this method are W. F. Leopold, Speech Development of a Bilingual Child, 4 Vols. (Evanston: Northwestern University, 1947) and H. V. Velten, "The Growth of Phonemic and Lexical Patterns in Infant Language," Language, XIX (1943), 281-92.

well-known study.[3] This study attempted to delineate levels of acquisition in the language of children. Brown and Bellugi followed several young children in the children's homes for a brief period each day over a period of months; they recorded their vocalizations on tape. When they analyzed the samples they had gained, the researchers were able to determine that acquisition proceeds along a definite sequence or pattern. These results were confirmed by studies using similar methods by Miller and Ervin[4] and Brown and Fraser.[5] The major problem for school-oriented research is time, and this methodology like the diary method involves too much time to be of significant benefit.

The work of Piaget cannot be overlooked in a discussion of the free play situation. Jean Piaget used a two-fold approach in gaining a language sample; he used both the free play technique and the structured interview. The method he used in interviewing will be discussed later in this chapter, but his use of the free play situation merits discussion at this point.

Piaget and his co-workers observed subjects in play and noted their language activity. This language was classified according to referent (ego- or ethnocentric) and purpose. He was attempting to gain a sample of language to be used as the basis for the interview which followed,

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[3]"Three Processes in the Child's Acquisition of Syntax," New Directions in the Study of Language, ed. Eric H. Lenneberg (Cambridge: The M.I.T. Press, 1968), 131-62.

[4]W. Miller and S. Ervin, "The Development of Grammar in Child Language," in U. Bellugi and R. Brown (eds.), "The Acquisition of Language," Child Development Monographs, XXIX (1964), 9-34.

[5]R. Brown and C. Fraser, "The Acquisition of Syntax," Verbal Behavior and Learning: Problems and Processes, eds. C. N. Cofer and B. Musgrave (New York: McGraw-Hill, 1963).

which was to concentrate upon discovering the logical thought processes the child used. The play situation involved one other child, and the activities in which they engaged themselves ranged from simple discussion to painting.[6]

Chief among the arguments offered against the free play situation, and therefore against Piaget's method, was that the subjects are involved only with each other in speaking. Critics considered that this interlocution among peers only allows or causes the subjects to use only a narrow range of lexical and syntactic structures and combinations of structures. Further, the critics stated that the researcher has no way to insure that language activity actually will take place, since in the absence of stimuli for talking the subjects may play quietly or mumble to themselves. Either of these arguments, or both for that matter, according to the critics allowed a questioning of the equality of the samples. Two of the more persistent critics have been Nass[7] and McCarthy.[8]

The other principal argument offered against the free play situation was the amount of time required to gather a sample. If enough time is allowed, the critics state, then the arguments presented in the paragraph above are of little concern. The spreading use of audio tape recorders has lessened the need for many researchers and has made it

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[6]The Language and Thought of the Child (New York: Harcourt, Brace and World, Inc., 1926).

[7]M. L. Nass, "The Effects of Three Variables on Children's Concepts of Causality," Journal of Abnormal Social Psychology, LIII (1956), 191-96.

[8]D. A. McCarthy, The Language Development of the Preschool Child (Minneapolis: University of Minnesota Press, 1930). See especially pages 33-35 on this point.

possible for a relatively few researchers to follow a larger number of subjects at the same time, and it has increased the probability of gaining the exact utterances of the subjects.

Research Related to Interviewing Children

Little evidence exists in the area of interviewing young people, except that which exists wherein interviews were used as a tool for gathering information. In cases where no discussion or defense of the use of the interview was presented, the researcher could infer nothing of value for the present study, and these studies are not, therefore, reported.

Nearly all research before 1960 was reviewed by Yarrow in the Handbook of Research Methods in Child Development.[9] According to Yarrow, interviews are more likely to produce spontaneous language from the subjects when the subjects are allowed to speak about actions they would take or have taken in certain situations than when subjects are asked to state what they have said, or would say in a certain situation. The interviewer should appear relaxed, and he should direct the interview in such a way that few concepts are discussed at a single sitting. The attention span of the subject is all important. The interviewer should attempt to adjust his level of usage to that of the subject.[10] Also, after making an explicit statement of his role, the interviewer should approach the subject on an "equal-status basis . . . , yet . . . (maintain) some degree of adult authority."[11]

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[9]L. J. Yarrow, "Interviewing Children," Handbook of Research Methods in Child Development, ed. Paul H. Mussen (New York: John Wiley and Sons, Inc., 1960), 561-602.

[10]Ibid., pp. 573-83.

[11]Ibid., p. 573.

The degree of abstraction used by the interviewer in his thought and speech has been shown to be an important factor in the success of interviews of young children. The results of Brown's study, "Linguistic Determinism and the Part of Speech," demonstrated that children's noun usage and seemingly their level of conceptual development were based on picturable, tangible objects rather than abstractions.[12] Biber showed that language is, for the most part, a utilitarian tool used more for discussing events and feelings than for communicating thoughts.[13] Biber's investigations used subjects whose ages ranged throughout the ages of the subjects used in this study. These studies, then, tended to confirm the ideas presented by Yarrow.

Another critical factor in interviewing young children has been the degree of standardization of the interview format. At the center of this controversy is the work of Piaget again. After the play situation, which was discussed above, Piaget conducted a structured interview in which he and his assistants attempted to probe the language used by the subject in the play situation to determine the logical processes that were behind those structures used by the subject. Piaget desired to delineate whatever patterns existed in the child's thought and speech, and so his interviews were designed to probe only the speech of the single subject. Piaget followed a non-directive format; he instructed his co-workers to work with the subject and attempt to lead him using his own topics and ideas, not some prearranged standard. Piaget was concerned with only one or two subjects at a time, but critics who worried about investigations

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[12]R. Brown, Journal of Abnormal Social Psychology, LV (1957), 1-5.

[13]Barbara Biber and others, Life and Ways of the Seven to Eight Year Old (New York: Basic Books, 1952).

using a larger number of subjects complained that this lack of standardization confounded the data gained and disallowed any legitimate comparison between or among subjects.[14]

Rogers has defended the non-directive technique by stating that each subject is an entirely different person, and each subject needs, therefore, to be treated differently.[15] Rogers and Piaget both imply and state throughout their respective works that the interviewer should be free to follow any paths of discussion the subject initiates.[16]

Research Related to Interviews Using Pictures

Many researchers have used toys, books, and/or pictures to furnish stimuli in addition to the verbal stimulus found in the interview. The additional stimulus was included in some studies to cause the subject to relax and become more spontaneous; the thought of researchers who used additional stimuli for this reason was that the removal of the personal referent and the substitution of an object or picture would cause the subject to relax. In others the additional stimulus was included in order that simulation or projective techniques could be used to study sociological or psychological problems or phenomena. The latter category is only tangential to this study, and, therefore, was reviewed first and in very brief fashion.

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[14]Piaget, op. cit.; Nass, op. cit.; and McCarthy, op. cit.

[15]C. R. Rogers, Client-centered Therapy (Boston: Houghton-Mifflin, 1951).

[16]While many books treat this issue, perhaps the most incisive discussion can be found in R. B. Kahn and C. Connell, The Dynamics of Interviewing (New York: John Wiley and Sons, Inc., 1957).

Much of the research in sociology done in the area of role determination has involved the use of pictures in interviews.[17] In this type of interview the researchers have shown the subjects pictures representing group conflicts, such as a black student standing on the periphery of a game involving only white students, or sex-role conflicts, such as a man washing dishes, a boy playing with dolls, or a girl playing with war toys. After presenting the picture, the researcher asked, "Do you see anything wrong in this picture?" Following this lead question would be more specific, direct questions, such as "Would you do this? Why or Why not? Does you father (mother, brother, sister) do this?" From studies like these it has become apparent that attitudes can be studied, provided that (1) there are many pictures representing the critical situation or role situation and (2) the interviewer does not indicate a preference for a particular answer or value.

Psycholinguists, too, have used pictures as a tool for studying underlying meanings, and the assumed mental processes involved, in children's speech. A recent and representative study of this type has been reported by Colin Fraser, Ursula Bellugi, and Roger Brown.[18] In this study the researchers studied grammatical contrasts, such as singular/plural, by asking subjects to imitate the researcher's statement, to produce a statement

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[17]Representative studies include: L. Fauls and W. D. Smith, "Sex-role Learning in Five Year Olds," Journal of Genetic Psychology, LXXXIX (1956), 105-19; E. Hartley, M. Rosenbaum, and S. Schwartz, "Children's Perception of Ethnic Group Membership," Journal of Psychology, XXVI (1948), 387-98; and M. Radke, H. G. Trager, and H. Davis, "Social Perceptions and Attitudes of Children," Genetic Psychology Monographs, XL (1949), 372-447.

[18]Control of Grammar in Imitation, Comprehension and Production," Journal of Verbal Learning and Verbal Behavior, II (1963), 121-35. This article has been reprinted in R. C. Oldfield and J. C. Marshall (eds.), Language (London: Penguin Books, Ltd., 1968), 48-69.

appropriate for a given picture, and to point to the appropriate picture in a contrasting pair of pictures when a given statement was made by the researcher. For example, two pictures, one showing two sheep eating and the other showing one sheep eating and the second sheep walking, were shown to the subject; the subject was asked to point to the picture which represented the statement "The sheep are eating."

Another representative study involving the use of pictures in an interview situation was a study designed to gather data about a child's acquisition of inflectional patterns. In this linguistic study, Berko used vague or meaningless pictorial forms and nonsense syllables. The subject was shown a picture and told that it was a "something" (The researcher supplied a nonsense syllable.). Then the subject was shown a picture which portrayed two of the same objects originally shown, and he was asked to say what was in the second picture. In this way Berko was able to determine whether the subject was capable of completing the inflectional paradigm; that is to say, this was a test to measure the degree to which the subject had internalized the grammar of his language.[19]

An historically important study, and one which used the picture stimulus technique as this researcher did, is the Dorothea McCarthy study reported in 1930.[20] Studying 140 children between the ages of eighteen and fifty-four months, McCarthy elicited language from the subjects

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[19]J. Berko, "The Child's Learning of English Morphology," Word, XIV (1958), 158-77. Another similar study using similar procedures and gaining confirming results is Susan M. Ervin, "Imitation and Structural Change in Children's Language," New Directions in the Study of Language, ed. Eric H. Lenneberg (Cambridge: The M.I.T. Press, 1968), 163-89.

[20]McCarthy, op. cit. See also D. A. McCarthy, "Language Development in Children," Manual of Child Psychology, ed. L. Carmichael (2d ed.; New York: John Wiley and Sons, Inc., 1954), 492-630.

in their own homes by presenting them with toys and picture books; McCarthy waited for the subjects to speak, as long as necessary, and then she recorded their language by hand. She continued to record language until fifty responses were recorded. The stimuli were always the same, but the order of stimulus presentation varied randomly. McCarthy then classified the responses according to length of response, function, completeness of construction, and vocabulary count by part of speech. These classifications were then studied in relation to each subject's chronological and mental ages, sex, presence of bi-lingualism where appropriate, father's occupational status, and peer group preferences (such as older or younger children and children or adults). McCarthy concluded, in part:

> This investigation has further contributed to methodology by the use of the cross-section method with short, controlled observations on a large number of children. This type of approach has proved very profitable and is a practical method to use in studying such functions in young children.[21]

In the area of school-oriented research a recent, comprehensive study was reported by Loban.[22] In this eleven year study, Loban attempted to relate language patterns of subjects to socio-economic status, sex, age, non-standard usage, teachers' comments, vocabulary count, and tested abilities in reading and writing. Following 388 subjects from Kindergarten through completion of Grade Nine, Loban and his co-workers used both the straight interview and the picture stimulus interview techniques as the basic data gathering procedures. They used, additionally, several rating forms which were filled in by teachers and paper-and-pencil tests.

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[21] The Language Development of the Preschool Child, p. 156.

[22] Walter Loban, Problems in Oral English (Champaign: National Council of Teachers of English, 1966). The interim report of this study, The Language of Elementary School Children (Champaign: National Council of Teachers of English, 1963), was particularly valuable for this study.

In the interview, which came first, each child was asked a series of questions which were the same for all subjects. Variations in the questioning schedule were permitted when the researchers believed it necessary for maintaining the subject's flow of speech. Loban stated that the first part of the interview was to record the spontaneous speech of the subjects "by asking him questions about playmates, games, television, illness, and wishes."[23] The second interview stiuation utilized a picture stimulus procedure; Loban reported the procedure this way:

> Next the child was shown, for the remainder of the interview, a series of six pictures, the same pictures being used for all subjects. The pictures were chosen for their interest, their success in preliminary trials, or their value in previous research. The subjects were asked to discuss what they saw in each picture and what they thought about each picture.[24]

Unfortunately, Loban never reported any comparison of the two interview techniques. He did, however, state, "These transcripts (from the interviews) of the child's oral language constitute some of the most important data collected in the study."[25]

The Loban studies remain the most recent comprehensive studies done in the area of interviewing children. Loban and his co-workers not only used the picture stimulus interview but also the straight interview to gather samples of language. The results of this eleven year study have been confirmed by other studies, all of which were less comprehensive,

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[23]Loban, Elementary School Children, p. 3.

[24]Ibid., pp. 3-4.

[25]Ibid., p. 4.

and Loban's study itself superceded many earlier studies since his longitudinal study involved many aspects as well as subjects.[26]

The design followed by Loban was based on several earlier studies. Two of the most important of those studies were carried out by Davis[27] and Smith.[28] These investigations attempted to relate certain aspects of language development to child development in particular. Logan's study superceded these studies due to its magnitude and designed interrelating of all areas of language activity. The methodology of the Loban study was taken in part from the well-known LaBrant study.[29] LaBrant investigated in a longitudinal fashion the general area of hierarchical stages of language development. As in the Davis and Smith studies, it is not necessary to report in detail these studies since the work of Loban encompasses and goes beyond all three; further, since the work done by Loban was based on these studies, it technically replaces them.

A series of studies which complements Loban's work has been reported by Kellogg Hunt, working only in the area of written language,[30] and by

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[26]A very recent study which further supports the findings of the above studies was recently reported by Leonard A. Marascuito and W. Loban. Entitled "An Empirical Study of the Dominating Predictive Features of Spoken Language in a Representative Sample of School Pupils: A Multivariate Description and Analysis of Oral Language Development," this later study confirms the evidence on fluency, dependent classes, and average length of communication units. See Research in Education, V (1970), ED 038424

[27]E. A. Davis, "Developmental Changes in the Distribution of Parts of Speech," Child Development, IX (1938), 309-17.

[28]D. V. Smith, "Growth in Language Power as Related to Child Development," National Society for the Study of Education Yearbook, XLIII (II) (1944), 52-97.

[29]L. LaBrant, "A Study of Certain Language Developments of Children in Grades 4-12 Inclusive," Genetic Psychology Monographs, XIV (1933), 387-491.

[30]Grammatical Structures Written at Three Grade Levels (Champaign: National Council of Teachers of English, 1965).

O'Donnell, Griffin, and Norris.[31] The latter study is of importance to this investigation since O'Donnell studied both written and oral language. The critical factor in the O'Donnell study is the stimulus used to prompt subjects' language activity; O'Donnell used a film as a stimulus. After showing the film to the subject, the researcher asked the subject to tell the story of the film. Then O'Donnell applied a transformational analysis; this type analysis attempts to delineate kernel structures and transformations applied to these kernel structures in a procedure that uncovers layers of internalized grammatical principles and thought processes.[32]

Computer Search of the Literature

As a further check to insure the completeness of the review of the research, the researcher requested and received from the Research and Information Center of the State Department of Public Instruction, Raleigh, North Carolina, a search of relevant areas. The computer was directed to search the files of Current Index to Journals in Education and Research in Education using descriptors Verbal Development, Oral Language, Language Acquisition, Research Methods in Language Studies, and any cross-referenced descriptors. The searches (0089R2 for CIJE and 0089R1 for RIE) were completed in March, 1971. All relevant data reported in those searches has been reported.

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[31]R. C. O'Donnell, W. J. Griffin, and R. C. Norris, Syntax of Kindergarten and Elementary School Children: A Transformational Analysis (Champaign: National Council of Teachers of English, 1967).

[32]While beyond the scope of the current investigation, the T-Unit analysis used by Hunt and O'Donnell merits much consideration for future research. Another analysis just becoming known is the stratificational model, proposed by Sydney Lamb, An Outline of Stratificational Grammar (Washington: Georgetown University Press, Institute of Languages and Linguistics, 1966), which carries the T-Unit into a matrix.

IV. RATIONALE FOR THE HYPOTHESES

Research studies have to fulfill a logical need, if they are to be contributions to knowledge in any way. This study was logical since it compared three often used but not empirically differentiated techniques for gaining a sample of children's language. The review of the research indicated that all three methods have been used and that no evidence existed in the research for postulating or stating the superiority of any one method. The hypotheses investigated in this study were stated, therefore, in the null form.

The categories of analysis, the dependent variables, in this study form the basis of the studies reported in the above section. The independent variables, that is the treatment situations, were constructed in order to test the three techniques or treatments in terms of these categories since they are most likely to form the basis of future studies much as they have formed the basis in the past. The next chapter discusses in detail the design used by the researcher to study the hypotheses presented in this chapter.

CHAPTER III

DESIGN OF THE STUDY

In the first two chapters the researcher introduced and presented the rationale for this investigation. In this chapter the researcher has presented the salient points of the methodology, the format, of the study. To accomplish this, this chapter includes a description of the procedure used to sample the population under study, a description of the part of the study done in the school setting, and a discussion of the methods used to collect, arrange, and analyse the data.

I. SELECTION OF THE POPULATION AND SAMPLE

In studies using more than one or two subjects, it is necessary that the investigator select a population for study. From that population, a sample is chosen for actual study. The following two sections summarize the methods used by the researcher to obtain a population and draw a sample of subjects.

Description of the Population

The researcher requested and received endorsement for carrying out this study in the Chapel Hill-Carrboro School System. The administrative staff of the school system selected the Carrboro Elementary School, Carrboro, North Carolina, because it met certain criteria established by the researcher: the student body of the selected school must be demographically representative of the school population of the entire system; the second grade population of the selected school must be demographically representative

of the school and the system; the second grade population of the school must be equal to or greater than twice the number of subjects required by the researcher (population = 96, sample = 45); and the principal of the selected school must be willing to help in the research effort. Permission to conduct the study during the regular school day on May 11, 1971, was granted by the school principal.

Description of the Sample

From the second grade population at Carrboro Elementary School (N = 96) a sample of fifty-seven subjects was drawn by a random method. Random method was used to separate these subjects into three groups of nineteen subjects each, and an identical method was used again to choose fifteen subjects and four replacement subjects for each treatment group.[1]

The resulting sample contained three groups of fifteen with four alternates. There were thirty-one female subjects and twenty-six male subjects, when alternates were counted; with alternates excluded, there were twenty-three females and twenty-two males involved in the study as subjects. The study, as carried out in the school, using replacements as necessary, actually involved twenty-four female subjects and twenty-one male subjects.

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[1]The procedure for random selection was as follows. The researcher assigned each student in the population a number between one and ninety-six, with the numbers running consecutively from one classroom to another. The researcher then picked a random row and a random column for a starting point in a table of random numbers. (See W. James Popham, Educational Statistice: Use and Interpretation (New York: Harper and Row, 1967), pp. 381-85.) Using the last two digits only the researcher proceeded boustrophedonically through the table until fifty-seven subjects had been drawn. The researcher assigned each of these fifty-seven numbers a new number between one and fifty-seven beginning at the end of the column of subjects. Nineteen subjects were randomly eliminated from this group of fifty-seven, then nineteen more were eliminated; this procedure resulted in three groups of nineteen subjects each. Finally, the researcher chose fifteen (primary) and four (replacement) subjects from each of the three groups by a procedure like the above.

II. DESCRIPTION OF TREATMENTS

In this section each of the three treatments are discussed in detail. Additionally, a subsection concerning the co-workers in the study is included, since their jobs were to work with the treatment schedules.

Description of Treatment One

Treatment One was the basic interview technique; that is, no stimuli other than verbal were used. For T1, fifteen subjects were interviewed by a co-worker for ten minutes each. The interviewer followed a set of sample questions, but the researcher allowed the interviewer to deviate from the list when, in that co-worker's opinion, such deviation would aid the flow of spontaneous speech or extended, prompted speech.[2] The questions followed closely questions recommended by previous researchers.[3]

The interviews took place between 8:30 and 11:30 in the morning in the Carrboro School. The subjects were brought to the treatment situation by a co-worker, who explained the treatment procedure to the subject and requested that he grant permission for the interviewer to talk with him. The interview site was a small room which was furnished with three student desks and a bookshelf. The interviewer had a pad and pencil to take notes during the treatment, and she operated a ten-minute timer and the tape recorder.

After eight subjects had been interviewed, the T1 interviewer switched to the T2 schedule, and vice versa.

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[2]The instructions given the interviewers and the list of questions for T1 are in the Appendix, pp. 55 - 57.

[3]Please see Part III, Chapter II of this paper.

Description of Treatment Two

Treatment two was the picture stimulus interview. Fifteen subjects were each interviewed for ten minutes by an interviewer in T2. The interviewer had ten pictures to show each subject, and the sequence of presentation was standard.[4] Each picture was mounted on a small piece of white poster paper, had a central object or a readily discernable theme, and (with the exception of three pictures which dealt with school) was in color. The questions the interviewer asked the subjects were nearly identical to those used in the first treatment. This standardization of questions was designed to make the verbal stimulus equivalent in the two interview treatments, thus controlling further for differences other than the presence of the visual stimulus in T2. As in the first treatment, the interviewer was instructed to follow the list of questions supplied by the researcher, unless in her opinion another question was more appropriate in a given sequence of questions.

The T2 interviews took place in the same time period as T1 in a small room located beside the school library. The room contained two chairs and a table; on the table the interviewer had a pad and pencil, the tape recorder, a ten-minute timer, and the pictures in order. The procedure for gaining the subject's permission to use his discussion with the interviewer in the study was gained as in T1.

As stated earlier, the two interviewers switched to the oppostie treatment after eight subjects had been interviewed. That is, the T2 interviewer worked with the first eight subjects in T2, then she switched to T1 for the last seven subjects in that treatment, while the T1 interviewer

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[4]The questions supplied the interviewers are included in the Appendix, pp. 55 - 58.

went to T2. This was done to control for any possible personal characteristics on the part of the interviewers which might bias the results of the study.

Description of Treatment Three

Treatment three was the free play situation. T3 involved fifteen subjects in the same area for fifty-five minutes; the purpose was to record their language activity while they played.

Four co-workers were present in the treatment in addition to the subjects; these co-workers were used to maintain order, to escort students to the rest room if necessary, and to assist in the recording of data. Two co-workers were stationed at opposite ends of the room. They were instructed to talk with subjects only if the subject initiated the discussion. The two stationed co-workers were instructed to record on notepads the relative position of each subject in their half of the room; this noting was to be done at three to five minute intervals, or more frequently if a substantial change in either the subjects or activities taking place occurred. Near each of these two co-workers was a tape recorder for which the researcher was responsible.

A third co-worker walked around and through the treatment area to assist the researcher in recording the subjects' language; this co-worker carried the remote microphone from the video tape recording system, and she was directed to move the microphone into any area in which the speech of the subjects seemed to be possibly difficult to understand.

The video taping system was operated by the fourth co-worker. This co-worker was instructed to pan the treatment area regularly and to concentrate the camera upon groups of subjects who were talking. This back-up system was thought to be the major difference in the researcher's ability later to attribute certain passages to the correct speaker.

Each subject wore a small hat onto which was stapled a numbered index card. The numbers assisted the researcher in identifying the subjects, and they also allowed the two stationed co-workers to identify on their position charts the subjects by number, which was a time saver. After the researcher gained the subjects' permission to record their activities, the subjects were told that they could play in the room, draw pictures, play games, or anything they liked. The school reading teacher had placed in the room a shelf of books of the appropriate level for a wide range of second graders. The subjects were told that they could use any of the materials they found in the room.

The room was L-shaped, which allowed a larger area for playing games and a smaller area for quieter play. Water was available at a fountain and a sink in the room.

Assistants to the Researcher

In order to obviate any contamination of the data, the researcher employed assistants throughout the study. The four assistants were all college graduates with teaching credentials; all had had teaching experience. The two co-workers who interviewed subjects had teaching experience at both the elementary and secondary levels; the other two co-workers had been teachers at the secondary level.

The interviewers were oriented to the study the weekend before the study was conducted. In the training session the co-workers were instructed about the design and purpose of the study, briefed on all aspects of the schedule of treatments, and given a short demonstration by the researcher of a typical series of questions for both interview treatments. Each co-worker checked out on a recording machine by inserting and extracting the tape, recording for approximately one minute, and by turning the machine on and off.

The two other assistants, who worked with the moving of subjects to the treatment areas and with the technical aspects of recording the data, were oriented the day before the study.

III. COLLECTION OF DATA

The data gathered in this study were recorded on portable, cassette-type tape recorders. These recording machines were used because of their ease of operation, their small size, and their general availability to most school personnel as well as researchers. Since quality and authenticity of reproduction are not so serious a problem in recording spoken sounds as in recording the wide frequency range of musical sounds, the smaller recorders were considered very satisfactory.

After the recordings were completed, the researcher compiled a transcript of each subject's speech from the tapes. From these transcripts the researcher counted words, thought groups, compound structures, and complex structures; also, the ratio of words per thought groups was calculated. These totals were determined for each subject and entered on tables for each treatment group. The tables were used as a basis for the analysis of data.

IV. ANALYSIS OF DATA

Since this study was a comparison of three factors, the crucial concern in the analysis of data was the determination of the variance between and within treatments. In other words, it was important to know whether the variance among subjects in different treatment groups was attributable to treatment or to the function of "error." The most appropriate statistical model for making this determination is the analysis

of variance (ANOVA). Therefore, the ANOVA model was used as the principal statistical tool in this study.

There were five categories of analysis (variables) and three treatment groups (factors) in this study. In order to apply the ANOVA model by means of a computer, as desired by the researcher, to these fifteen cells, a "packaged" computer program was chosen. The program was the Cramer MANOVA program from the University of North Carolina Psychometric Laboratory.

A fifth co-worker helped in the programming of the computer, which was done according to the MANOVA program. The computer-necessitated cards were punched directly from the tables drawn by the researcher in the collection of data part of the study.

Two separate ANOVA programs were conducted on the computer. The first compared the two interview treatments (T1 and T2); the second program compared all three treatments. The first comparison is technically called the a priori test of significance, since the second comparison represented the comparison of all factors used in the study.

The researcher set the alpha level for this study at .05. That is, it was decided by the researcher that unless the analysis indicated that the results obtained were likely to occur less than five times in a hundred by the operation of chance, the hypotheses could not be rejected. As will be demonstrated in the next chapter, the five percent level of significance was exceeded in all cases.

CHAPTER IV

FINDINGS OF THE STUDY

When the recording of the subjects was completed, the researcher transcribed the language samples in order to simplify the analysis. This chapter contains the data gathered from those transcriptions and reports of the statistical analysis of that data.

I. FINDINGS BY TREATMENT

The comparison of treatments one, two, and three was carried out as proposed to determine whether a statistically significant difference existed among the treatments on all variables (categories of analysis). This determination of over all significance involves for the most part the average scores by groups on each variable and the amount of variance within and among groups. The means and standard deviations for all fifteen cells are presented in Table I.

It should be noted that there is an obvious difference between treatment three and treatments one and two in all columns (categories of analysis, variables). There are, further, various differences between treatments one and two in all categories, but this difference is quite small compared to the difference between either treatment one or two and treatment three.

One output of the Cramer Manova program is the Wilks Lambda Criterion measure, which is a test for overall significance. Using this criterion, the researcher found that a statistically significant difference

TABLE I

MEANS AND STANDARD DEVIATIONS FOR ALL TREATMENTS ON ALL CATEGORIES OF ANALYSIS

TREATMENT*		PRODUCTIVITY	THOUGHT GROUPS	COMPOUND STRUCTURES	COMPLEX STRUCTURES	INDEX (WORDS PER THOUGHT GROUP)
1 The Basic Interview	MEAN	621.267	92.600	42.867	6.267	6.608
	SD	244.030	25.210	21.186	3.807	1.531
2 Interview With Pictures	MEAN	640.467	93.933	41.467	6.733	6.593
	SD	265.790	25.164	17.390	5.418	1.572
3 Free Play situation	MEAN	149.200	34.600	1.607	1.200	4.336
	SD	93.032	21.652	1.100	1.207	0.663

*There were fifteen (15) subjects in each treatment.

exists among the three treatments. ($F = 7.599$, $df = 10,76$, p less than .001) While observation of the means indicates the direction of difference, the researcher had determined in the a priori test comparing treatments one and two that no significant difference existed between the first two treatments. ($F = 0.176$, $df = 5, 24$, p less than .969) Therefore, the third treatment made the statistically significant difference.

II. FINDINGS BY HYPOTHESES

The researcher studied five hypotheses. The results for each hypothesis, which involves a single category of analysis, are discussed in the next five subsections.

Results for Hypothesis One

The first hypothesis was the statement that there would be no significant difference among the three treatments in the category of productivity, which was the term given the total number of words spoken by each subject. This hypothesis was not confirmed. The determination of a statistically significant difference ($F = 25.093$, $df = 2,42$, p less than .001) among the treatments in the productivity category of analysis indicates that a gross difference due to treatment was present. The a priori test of treatments one and two did not yield such a difference. ($F = 0.042$, $df = 1,28$, p less than .838) The a priori test plus observation of the means (See Table I.) unquestionably shows the third treatment to be the weakest in the productivity measure. Table II is a summary ANOVA table which presents the basis for the rejection of the first hypothesis.

Results for Hypothesis Two

The second hypothesis under investigation was the null statement concerned with the total number of thought groups. Defined as independent syntactic structures, thought group counting is basic to most language studies. The results of the study of this variable parallel the results obtained on the first variable. While the a priori test showed no significant difference between treatments one and two ($F = 0.021$, $df = 1, 28$, p less than .886), the test of all three treatments did show a significant difference ($F = 29.723$, $df = 2, 42$, p less than .001). Observation of the means (Table I, p. 33) confirms that the third treatment was weakest on this measure; therefore, the second hypothesis was rejected. Table III is a summary table which presents the pertinent data for the statistical proof.

TABLE II

ANOVA SUMMARY TABLE FOR PRODUCTIVITY
FOR TREATMENTS ONE, TWO, AND THREE

SOURCE	df	MS	F	p less than
Treatment	2	1161395.0000	25.093	.001
Error	42	46283.6249		

TABLE III

ANOVA SUMMARY TABLE FOR THOUGHT GROUPS FOR ALL FACTORS

SOURCE	df	MS	F	p less than
Treatment	2	17215.527	29.723	.001
Error	42	579.1988		

Results for Hypothesis Three

The third hypothesis posed by the researcher involved the analytic category of compound structures, which are frequently studied as an index of maturity in language development studies. Observation of the means (Table I, p. 33) for the first three categories of analysis indicates that approximately 2.5 percent of the means of either treatment one or two was achieved in treatment three in compound structures, as compared to 36.9 percent in the thought group category and 23.3 percent in the productivity measure. The treatment difference is, then, greater in the category of compound structures than either of the two preceding categories, and this factor accounts for the higher F ratio found in this variable. The difference was significant ($F = 33.703$, $df = 2, 42$ p less than .001). The a priori investigation of treatments one and two did not, however, indicate a significant difference ($F = 0.039$, $df = 1, 28$, p less than .845); the effect noted by observation is confirmed by the tests. In Table IV are the data for the category of compound structures.

TABLE IV

ANOVA SUMMARY TABLE FOR COMPOUND STRUCTURES

SOURCE	df	MS	F	p less than
Treatment	2	8453.391	33.703	.001
Error	42	250.8201		

Results for Hypothesis Four

The category of complex structures was the basis for the fourth hypothesis, which stated that there would be no significant difference

among the treatment groups in this measure. Complex structures were included as categories of analysis since they are a basic concern for the researcher investigating the level of maturity in language development studies. The results obtained on this variable parallel the results obtained on the three other variables. There was a significant difference among the three treatments ($F = 9.354$, $df = 2, 42$, p less than .001), and the earlier test of the first and second treatments showed no significant difference ($F = 0.075$, $df = 1, 28$, p less than .787). As in the third hypothesis, a relatively larger discrepancy among means (Table I, p. 33) existed in the fourth category than in either of the first two categories; the mean of the fourth variable for treatment three totaled only 17.8 percent of the treatment two mean in the same category, that is. For the fourth category, however, this discrepancy is not as large as was the discrepancy in the third category (2.5 percent total). The fourth category had the smallest F ratio of all the categories; while this F value was significant at less than .001 as were the others, observation of the standard deviations presented in Table I will indicate that this low F value is a function of the large deviations associated with each of the three means. The ANOVA summary for the rejection of the fourth hypothesis is contained in Table V.

TABLE V

ANOVA SUMMARY TABLE FOR COMPLEX STRUCTURES

SOURCE	df	MS	F	p less than
Treatment	2	141.266	9.354	.001
Error	42	15.1022		

Results for Hypothesis Five

The fifth hypothesis stated that there would be no significant difference among the three treatments in the index category; this category was computed by determining the ratio of total words over total number of thought groups. This category was designed to analyse the average lengths of subjects' syntactic structures. The fifth hypothesis must be rejected because there was a significant difference among the treatment groups ($F = 14.637$, $df = 2, 42$, p less than .001), and again the third treatment produced the lowest mean (See Table I.). The direction of difference ascertained by observation is verified by the results of the a priori test of treatments one and two; that test did not indicate a significant difference ($F = .001$, $df = 2, 42$, p less than .98). Treatment three, therefore, is shown to be significantly weaker than the other two treatments. Summary data for the analysis of variance applied to the category of words per thought groups appear in Table VI.

TABLE VI

ANOVA SUMMARY TABLE FOR INDEX

SOURCE	df	MS	F	p less than
Treatment	2	25.644	14.637	.001
Error	42	1.7519		

III. CORRELATIONS AMONG CATEGORIES

One aim of any research study is to clarify and, if possible, narrow the field of investigation to allow any future studies to become more specific. For this reason, this section is included.

In studying the five dependent variables which formed the bases for the hypotheses under investigation, several rather high correlations among those categories of analysis were discovered. The researcher is not familiar with such results from any other piece of research. Generally speaking, six-tenths is considered a high correlation, but in studies of this type a correlation of eight-tenths is perhaps the lowest desirable. It would seem that attribution of sixty-four percent (as is the case with a correlation of eight-tenths) is worthy of mention. The correlations among variables are presented in Table VII if the correlation is at least .66.

Table VII shows that the productivity measure and the thought group measure correlate at .856, which denotes a seventy-two percent attribution of the former in the latter. Reading the second row, one can see that productivity as measured and complex structures as measured correlate at .824, and so on. Using a correlation figure a researcher can determine how much of the variance in one measure can be attributed to the variance in another. If a researcher wishes to consider regression problems (that is, problems of prediction from known data to yet unknown data), certain statistical procedures which involve a knowledge of the correlation among variables as these can be followed. The approximation of attribution can be determined by squaring the correlation coefficient (R).

IV. SUMMARY

The researcher investigated five hypotheses; all five hypotheses had to be rejected due to a statistically significant difference among treatment groups in each of the five postulated areas of investigation. Observation of the means presented in Table I (p. 33) further substantiates what

TABLE VII

CORRELATIONS OF .66 AND
HIGHER AMONG VARIABLES

VARIABLE	R	VARIABLE
Productivity	.856	Thought Groups
Productivity	.824	Complex Structures
Productivity	.764	Compound Structures
Productivity	.726	Index (w/tg)
Index (w/tg)	.695	Complex Structures

the a priori test of treatments one and two indicated: there was no significant difference between treatments one and two. Since there was no difference between one and two, but there was a difference among one, two, and three, it was easily seen that treatment three made the difference. In rejecting the hypotheses, the researcher has shown that the third treatment (the free play situation) is the weakest sampling technique of the three tested. The implications of these findings as well as statements of the conclusions and a summary of the entire study are to be found in the next chapter.

CHAPTER V

CONCLUSIONS, SUMMARY, AND IMPLICATIONS

In this chapter are presented the researcher's interpretations of the results demonstrated in the last chapter, the researcher's summary of the investigation and the findings, and a discussion of the implications of this particular study for the study of child language as an area and for the design of furure investigations.

I. CONCLUSIONS

Each of the following conclusions is based on the data reported in Chapter IV. For each conclusion a short review of the findings pertinent to that conclusion follows the statement.

Conclusion One

The recording of an interview situation is a better method than the recording of a free play situation for gaining a sample of children's language. On all five variables under study the free play situation was significantly poorer than either of the two interview situations studied. The difference seems to be the lack of stimuli for speech in the free play situation. Also, it took the researcher longer to transcribe the language activity for each subject in treatment three.

Conclusion Two

The inclusion or exclusion of the additional stimuli of pictures in the interview will not make a significant difference in the resulting

speech of the subjects. This finding is substantiated by the results of the a priori analysis of variance between treatments one and two; that test indicated that a very high percentage of the differences between the two treatments was due to chance.

Conclusion Three

Unless an extraordinarily stringent test is required, measuring the total number of words spoken by a subject in an interview will yield a good indication of that subject's performance on syntactic structures variables such as the thought group, compound, and complex variables used in this study. The correlation among productivity and all other variables in this study was at least .720; this figure denotes an attributive function of higher than fifty percent. The correlation of productivity with both thought groups and complex structures measures was, further, above eight-tenths (.80).

Generalizability

Strictly speaking, the above conclusions can only be considered applicable within the Chapel Hill, North Carolina, area second grades. This study was designed, however, to improve upon the factor of external validity (generalizability) by the rigid adherence to randomization procedures, the tight control of the methods used, and the high level of significance set as rejection criterion. Were this study to be replicated anywhere, the researcher believes that the results of that study would confirm the results reported in this investigation.

II. SUMMARY

The researcher studied three techniques of gaining a corpus of language for further study. The techniques studied were the interview, the

picture stimulus interview, and the free play situation. The two interview techniques used very nearly identical questions in order to better assess the factor of the picture as additional stimulus. Co-workers collected the data, which was quantified according to five categories: (1) Productivity, or total number of words spoken by a subject; (2) Thought Groups, or total number of independent syntactic structures; (3) Complex Structures; (4) Compound Structures; and (5) Index, or ratio of productivity over thought groups.

The data were analysed according to the analysis of variance statistical model using the Cramer MANOVA computer program which was locally available. A significant difference on all categories of analysis among the three treatment groups was found (p less than .001). An a priori test using the same model but comparing only the two interview treatment groups evidenced only a very slight difference that was not significant. This test confirmed the observations of the researcher after the analysis that the third (free play situation) treatment was the weakest according to the means for each treatment in each category of analysis.

The researcher concluded that the interview technique with or without pictures as an additional stimulus is superior to the free play situation in studies attempting to gather a sample of children's language. Also, there is no difference between interviews using picture stimuli and interviews not using pictures in the language sample gained. The category of analysis involving the total number of words spoken by a subject is most critical in studies of this type since that cateogry correlated highly with all other categories of analysis.

III. IMPLICATIONS

Foremost of the implications of this study is the knowledge gained

regarding the methodology to be followed in collecting a sample of children's language. An elementary school teacher who desires the language of a given pupil be studied by an expert may simply interview the person and record that interview on audio tape. She would then mail that tape to the expert for analysis. The teacher who carried out this interview could follow the questions included in the appendix to this study.

Also important is the knowledge that stimuli other than verbal are not needed in the interview situation. Any researcher, of course, may include whatever additional stimuli he desires, but this study indicates that additional stimuli are not necessary.

People involved in dialect studies and other forms of language study can be assured that the short interview is quite satisfactory for gaining the corpus of language for study. This is a method to be preferred since the scheduling of interviews is much easier than scheduling free play situations.

Further, it has been demonstrated that in studies of methodology the measuring of the total number of words spoken by a subject or groups of subjects may be the only necessary variable studied. This knowledge indicates that much could be learned of the language power of one student relative to another by simply interviewing each in the same manner and counting their words on a hand counter. It also would seem to indicate that, for a researcher attempting to refine a particular methodological tool, this single category of analysis would be sufficient for allowing inferences to be made regarding the other variables to be studied.

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APPENDICES

APPENDIX A.

INSTRUCTIONS TO CO-WORKERS

The following instructions were given to all co-workers both at the orientation and at the study site.

1. Offer only positive reinforcement, and then only verbally.

2. Remember that your actions may well convey information which could influence the subjects' responses.

3. Allow ten minutes for each interview. Interviewers, begin timing after you have introduced yourself to the subject and have determined that the subject is comfortably seated and relaxed.

4. Follow the attached sample questions in all interviews. If a subject begins to talk about something other than that which you asked, let him continue, but start questioning with the next sample question when the subject has completed talking spontaneously.

5. Follow the same procedure for all subjects.

6. Please remember that spontaneous speech is desired.

7. Subject handlers, after meeting the subject at the classroom, conduct him to the treatment area quietly and inform the subject of what is to happen. Request that he allow the researcher to record the interview.

Sample Questions for Treatment One Interviewers

1. Do you ride a bus to school? How long does it take on the bus? How far does the bus go?

2. Tell me how you go to get from your house to the school.

3. Do you look forward to getting to school? Why?

---

1. Do you play many games at school? Which games do you like? Why?

2. Tell me how to play (games mentioned by S).

---

1. Do you have any pets? Dogs or cats or other animals?

2. Tell me about your pet. Describe it for me please.

3. Have you ever been to a farm? Tell me about your trip. What do you think a farm would be like if you did visit one? Describe.

---

1. What do you enjoy most about surprises?

2. What is the last surprise you received? Tell me all about it.

3. If you looked forward to anything you wanted, what would it be?

---

1. What would you look forward to about school. Is there any one special thing that is fun about school?

2. Tell me all about the most fun you have ever had in school.

3. What one thing have you disliked most about school? Tell me about the most fun thing and the thing you disliked the most.

---

1. Have you ever done a school project? Was it fun? Tell me about it.

2. Tell me about something your class has done as a group. Was it fun? Why? Describe what everybody did.

---

1. Have you ever been to a factory? What was it like?

2. What do you think a factory would look and sound and smell like if you walked through one?

---

1. Have you ever been on a picnic? Tell me about it.

2. What did you take? What would you take if you did go?

3. Why do people like picnics? Do you like picnics? Why?

Sample Questions for Treatment Two Interviewers

1. What is this picture about?

2. Do you ride a bus? If yes: How far do you ride? How long? What is it like to ride a bus?

3. How do you get from your house to the school? Give me directions.

---

1. What is this picture about?

2. Have you ever played ball? or Do you like to watch ball games? Do you like to play?

3. Tell me about some games you like to play.

4. Tell me how you play (a game the S has mentioned).

---

1. What is this picture about?

2. Do you like horses? Do you have a horse? (If yes: Tell me about your horse.)

3. Do you like dogs or cats? Do you have a pet animal? Tell me about it.

4. Have you ever been to a farm? Tell me about your trip. If no, then: What do you think a farm would be like?

---

1. What is this man doing?

2. What do you think he is looking for?

3. Tell me what you think he sees.

---

1. Back to school now. Do you do any fun things here at school?

2. What are these boys doing?

3. Tell me about the most fun thing you have ever done in school.

---

1. Does this school project look like fun?

2. What have these students built?

3. Tell me what you think some of the shapes are in this picture.

---

1. This is a factory. What do you think the people are making?

2. Have you ever been to a factory? (If yes: Tell me all about your trip. If no: What would it be like to walk through a factory? Try to describe for me what it would look and sound like.)

---

1. What are this boy and girl doing?

2. What is in the picnic basket? Go ahead and guess.

3. Have you ever been on a picnic? Tell me about it. or What would it be like?

APPENDIX B.

TABLES FOR A PRIORI ANOVA

TABLE VIII

ANOVA SUMMARY TABLE FOR TREATMENTS ONE AND TWO, ALL FACTORS

Factor (Category)	F*	p less than
Productivity	0.042	0.838
Thought Groups	0.021	0.886
Compound Structures	0.039	0.845
Complex Structures	0.075	0.787
Index (w/tg)	0.001	0.980

*df = 1, 28.

TABLE IX

SUMMARY TABLE FOR OVERALL SIGNIFICANCE USING WILKS LAMBDA CRITERION

SOURCE	df	F	p less than
Treatment	5.000	0.176	0.969
Error	24.000		

APPENDIX C.

TRANSCRIPTIONS FOR A SAMPLE SUBJECT IN EACH TREATMENT

Sample From a Basic Interview Subject's Corpus

"He is a real good dog. He took up for me. You see, we had this little post (sic), and this dog came and got on me, and Jim thought he was going to hurt me. Jim broke the chain and got after him. He watches out for me and my sister."

"I got them for Christmas. I got me a midi-bike, a go-cart, and a horse. He is a big, big horse. His name is Frisky, and when he jumps up I get scared. I can stay on him pretty good. My cousin has got one too. Me and him race all the time. He has got a midi-bike, and I have got a midi-bike. It is a big bike, almost like a Harley, but it is not a Harley. It is so hard to crank, but it is a lot of fun. He has got a guitar."

"I have got a double-barreled shotgun. I don't shoot it very much because my father said I can shoot it when I get real grown. I have got a blank gun for target, too."

Totals for the Above Sample

Productivity	Thought Groups	Compound	Complex	Index (w/tg)
182*	26	12	4	7.00

*Hyphenated words are counted as one. Mazes are omitted.

Sample From a Picture-Stimulus Interview Subject's Corpus

"A boy and a girl riding on a horse. I like riding. We have a horse,

and we ride on it. I like to ride on a horse. Right now we can't ride it, because it is going to have a baby colt. This little colt will be me and my brother's. Big people can't ride mine, because it has a hip out of joint; everytime it comes out of joint, my grandfather has to put it back in joint. I live out in the country, and I just go. My grandmother lives up one hill and down another, and I go to my grandmother's house. I can't ride my bike, because it is too big of a hill."

"It looks like a man and a woman going on a picnic. The woman has got a little hat. They had their picnic in there. They will carry chicken and potatoes. We had bar-b-qued chicken last night. I love bar-b-qued chicken! My dad bar-b-ques it on a grill. We have this great big grill that my dad made, and it has got a thing on it. He puts it on there, and he puts the sauce on there and puts the charcoal in the fire."

"In Brownies we have a girl scout project every week. We made a puppet show. We played Cinderella and Sleeping Beauty. I was the ugly step-sister; then, I got to be Cinderella. It was really fun. We made them (the puppets). We took a little stick, and we put on a styrofoam ball. Then we made a dress for it and eyes. Then we made hair."

Totals for the Above Sample

Productivity	Thought Groups	Compound	Complex	Index (w/tg)
267	36	14	5	7.416

Complete Transcription of a Free Play Situation Subject's Corpus

"Look! I would like that."

"I hit her back."

"I bet you talk into it. Look! Somebody say something. Look!"

"Now I want to read a newspaper. I wasn't of a mind to begin with.

I put my head down."

"Robbin, you had better watch out. Dawn is coming to get you. You better watch out Joe."

"Do you mean in this one?"

"Jeffrey, do that."

"That was bad luck. Joe, let's kick your shelf some."

"Do you know what I did?"

"I don't know. Do you have your own? Forty-four of them! Look at that truck. Look! Here is something. Finish turning the page, though."

Totals for the Above Sample

Productivity	Thought Groups	Compound	Complex	Index (w/tg)
106	24	00	2	4.416